

Amendments to the Claims

Please amend Claims 1, 3, 9, 11 and 13, and add new Claims 14-16 to read as follows.

1. (Currently Amended) A printing apparatus which uses a printing head provided with printing elements, differing in sizes of dots formed by said printing elements, to perform printing on a printing medium, said apparatus comprising:

data producing means for, based on image data, producing printing data corresponding to each of the printing elements under a predetermined condition through a color transformation process transforming the image data to the printing data, the printing elements differing in the sizes of dots to be formed; and

conversion means for converting the printing data produced by said data producing means into dot data for distributing a dot to a pixel, said conversion means executing the conversion independently for and correspondingly to each of the different sizes of dots.

2. (Previously presented) A printing apparatus as claimed in claim 1, wherein the predetermined condition for producing the printing data is a condition that a change in density of an image, which is printed with dots formed based on the printing data corresponding to each of the printing elements differing in the sizes of dots formed, is linear.

3. (Currently Amended) A printing apparatus as claimed in claim 2, wherein said conversion means converts the printing data into the dot data that applies a large size of dot in a density range equal to or less than an intermediate value ~~of an expressible density range~~ in a range of density values that are expressed by dot formation.

4. (Previously presented) A printing apparatus as claimed in claim 3, wherein the printing elements include ink ejection openings for ejecting ink.

5. (Previously presented) A printing apparatus as claimed in claim 4, wherein the printing head arranges the ejection openings that eject ink of a same color and different ejection amount in parallel and in a scanning direction of the printing head, and is used for forming the dots differing in size by means of the ejection openings ejecting ink differing in ejection amounts.

6. (Previously presented) A printing apparatus as claimed in claim 4, wherein the printing head arranges the ejection openings that eject ink of a same color and different ejection amount alternately in a direction perpendicular to a scanning direction of the printing head, and is used for forming the dots differing in size by means of the ejection openings ejecting ink differing in ejection amounts.

7. (Previously presented) A printing apparatus as claimed in claim 5, wherein the printing head arranges a group of the ejection openings of a plurality of ink colors and another group of the ejection openings of the plurality of ink colors symmetrically with respect to an axis perpendicular to the scanning direction.

8. (Previously presented) A printing apparatus as claimed in claim 4, further comprising a plurality of print buffers, corresponding to respective inks of different ejection amounts and of a same color, for storing the dot data selectively in the plurality of buffers so as to eject ink from the corresponding ejection openings.

9. (Currently Amended) A method of producing printing data used in a printing apparatus which uses a printing head provided with printing elements, differing in sizes of dots formed by said printing elements, to perform printing on a printing medium, said method comprising the steps of:

producing, based on image data, printing data corresponding to each of the printing elements under a predetermined condition through a color transformation process transforming the image data to the printing data, the printing elements differing in the sizes of dots to be formed; and

converting the printing data produced by said data producing step into dot data for distributing a dot to a pixel, said converting step executing the conversion independently for and correspondingly to each of the different sizes of dots.

10. (Previously presented) A method as claimed in claim 9, wherein the predetermined condition for producing the printing data is a condition that a change in density of an image, which is printed with dots formed based on the printing data corresponding to each of the printing elements differing in the sizes of dots formed, is linear.

11. (Currently Amended) A method as claimed in claim 10, wherein said converting step converts the printing data into the dot data that applies a large size of dot in a density range equal to or less than an intermediate value ~~of an expressible density range~~ in a range of density values that are expressed by dot formation.

12. (Previously presented) A method as claimed in claim 11, wherein the printing elements include ink ejection openings for ejecting ink.

13. (Currently Amended) A program for causing an information processing apparatus to execute a printing data producing process, which produces printing data used in a printing apparatus which uses a printing head provided with printing elements, differing in sizes of dots formed by said printing elements, to perform printing on a printing medium, said printing data producing process comprising the steps of:

producing based on image data, printing data corresponding to each of the printing elements under a predetermined condition through a color transformation process transforming the image data to the printing data, the printing elements differing in the sizes of dots to be formed; and

converting the printing data produced by said data producing step into dot data for distributing a dot to a pixel, said converting step executing the conversion independently for and correspondingly to each of the different sizes of dots.

14. (New) A printing apparatus as claimed in Claim 1, wherein the image data is defined as R, G, B data and the printing data is defined as Y, M, C data.

15. (New) A method as claimed in Claim 9, wherein the image data is defined as R, G, B data and the printing data is defined as Y, M, C data.

16. (New) A program as claimed in Claim 13, wherein the image data is defined as R, G, B data and the printing data is defined as Y, M, C data.